Biosketches

[TOC \o "1-3" \h \z \u]

Session 1

EPA Co-Chair:

Ravi Subramaniam, U.S. EPA NCEA

External Co-Chair:

Mel Andersen, The Hamner Institutes for Health Sciences

Dr. Andersen, the Chief Science Officer, at The Hamner Institutes for Health Sciences in Research Triangle Park, NC, was Professor of Environmental Health at Colorado State (1999 – 2002) and Vice-President of the K.S. Crump Group of ICF Kaiser International Consulting (1994-1998). Between 1971 and 1994, he held positions in toxicology research and research management in the federal government (DoD and US EPA) and in private industry (Chemical Industry Institute of Toxicology). His career contributions include developing biologically realistic models of the uptake, distribution, metabolism, and biological effects of drugs and toxic chemicals and applying these models in safety assessments and quantitative health risk assessments. Dr. Andersen is author or co-author of 350 papers, 60 book chapters and numerous reports and abstracts. In June 2002, Dr. Andersen received recognition as a highly cited scientist by the Institute for Scientific Information. Dr. Andersen is board certified in industrial hygiene and in toxicology and a Fellow of the Academy of Toxicological Sciences. His current research focuses on developing case studies to show the 21st century vision for toxicity testing in practice with specific cellular signaling pathways. He did a BSc degree in Chemistry at Brown University and a PhD in Biochemistry and Molecular Biology at Cornell University.

Speakers:

Dean Appling, University of Texas at Austin

Dean Appling is the Lester J. Reed Professor of Biochemistry at The University of Texas at Austin, where he has taught and done research for the past 29 years. Dr. Appling earned his B.S. in Biology from Texas A&M University, and his Ph.D. in Biochemistry from Vanderbilt University. The Appling laboratory studies the organization and regulation of metabolic pathways in eukaryotes, focusing on folate-mediated one-carbon metabolism. The lab is particularly interested in understanding how one-carbon

metabolism is organized in mitochondria, as these organelles are central players in many human diseases. The laboratory has expertise in mitochondrial isolation and subfractionation, from both cultured cells and from mammalian tissues, and in protein purification and enzyme characterization. More recently, the Appling laboratory has incorporated conditional knockout mouse technologies and metabolic labeling methods with stable isotopes to investigate the roles of mitochondrial one-carbon metabolism in vivo.

James Swenberg, University of North Carolina at Chapel Hill

[HYPERLINK "http://www.med.unc.edu/toxicology/about-us/member-profiles/swenberg"]

Lisa Peterson, University of Minnesota

Lisa Peterson received her BS in chemistry at Macalester College, St. Paul, MN. She did her PhD thesis work in the laboratory of Neal Castagnoli, Jr. at the University of California, San Francisco. After 2.5 years as a post-doctoral fellow in Fred Guengerich's laboratory at Vanderbilt University, she joined the Division of Chemical Carcinogenesis led by Stephen Hecht at the American Health Foundation in Valhalla, NY. In 1997, Lisa moved to the University of Minnesota where she is now a Professor in the Division of Environmental Health Sciences and the Masonic Cancer Center. Her research focuses on mechanisms by which chemicals initiate carcinogenesis. She employs bio-analytical chemistry to identify and quantify reactive intermediates and their cellular reaction products and has published more than 80 journal articles in the area of chemical toxicology. Lisa has been an active member of the Division of Chemical Toxicology, American Chemical Society since its inception, serving as chair of the Bylaws Committee (1997-1998), councilor (2002-2004) and chair (chair-elect, 2008; chair 2009-2010; immediate past chair, 2011-2012). She has also served as Treasurer for the International Society for the Study of Xenobiotics. She is currently *Associate Editor of Chemical Research in Toxicology* and Chair of the National Toxicology Program's Board of Scientific Counselors.

Discussants:

Paul Schlosser, U.S. EPA NCEA

Paul Schlosser received his Bachelors of Science (1982) and PhD (1988) from the University of Rochester, with a Masters of Applied Science (1984) from the University of Toronto, all in Chemical Engineering. He then conducted three years of postdoctoral research in Biochemical Engineering at the California Institute of Technology, developing methods to identify limiting factors in biochemical pathways used in industrial fermentation and cell cultures. In 1991 Paul joined the Chemical Industry Institute of Toxicology (later the CIIT Centers for Health Research, now The Hamner Institutes), and conducted research on the modeling of xenobiotic metabolism and dosimetry, with applications in risk assessment. Because of his background training in chemical engineering which includes transport phenomena, one focus of this work was inhalation dosimetry, particularly that of formaldehyde. Dr. Schlosser came to the U.S. EPA, National Center for Environmental Assessment (NCEA) in 2004 as an Environmental Health Scientist. Dr. Schlosser now co-chairs the NCEA's Pharmacokinetic Workgroup

(PKWG), which is tasked with evaluating and guiding or conducting the application of PBPK and PK models in risk assessment. He has been a primary contributor to the completed Toxicological Reviews for dichloromethane and methanol (non-cancer). Paul also works on developing methods to quantify variability and uncertainty in PBPK model predictions.

Jeff Ross, U.S. EPA National Health and Environmental Effects Research Laboratory

[SEQ CHAPTER \h \r 1]Jeffrey Ross received his Ph.D. in Molecular Biology in 1982 from the University of Texas at Dallas. After completing postdoctoral research at the University of Texas System Cancer Center, he joined the U.S. Environmental Protection Agency as a Research Biologist in 1986. For over 30 years his research has focused on the formation and biological consequences of DNA damage induced by a variety of environmental carcinogens. He currently serves as the Chief of the Carcinogenesis Branch in the Integrated Systems Toxicology Division in the National Health and Environmental Effects Research Laboratory of the US Environmental Protection Agency.

Martyn Smith, University of California at Berkeley

Martyn T. Smith, Ph.D., is Professor of Toxicology in the School of Public Health, Division of Environmental Health Sciences, at the University of California, Berkeley. He received his Ph.D. in Biochemistry in 1980 from St. Bartholomew's Hospital Medical College, London and completed post-doctoral training in toxicology at the Karolinska Institute. He currently teaches Advanced Toxicology and Introduction to Toxicology. Since 1987, he has been the Director of the NIEHS Superfund Research Program at Berkeley. Since 2010, he has been Director of UC Berkeley Institute of the Environment. His research group investigates the adverse effects of chemicals on human health by studying the mechanisms by which environmental exposure to contaminants causes disease. This research is focused on the blood-borne cancers leukemia and lymphoma and the chemicals benzene, arsenic, formaldehyde, trichloroethylene, and polycyclic aromatic hydrocarbons. The goal is to improve toxicity testing, hazard identification, and risk assessment by applying “omics” (human genome-based) technologies to develop biomarkers of exposure, early effect, and susceptibility in humans. The aim is to lead to faster identification of any negative health impacts related to environmental exposures and perhaps to influence public policy to mitigate future exposures.

Case Study:

Thomas Starr, TBS Associates

Thomas B. Starr is the founding principal of TBS Associates, an independent consulting firm with quantitative risk assessment as its main practice area. He is also an adjunct Associate Professor in the Department of Environmental Sciences and Engineering in the School of Public Health at the University of North Carolina-Chapel Hill. He trained academically in theoretical physics at Hamilton College (BA, 1966), and the University of Wisconsin-Madison, (MS, 1968, and PhD, 1971). Following NSF postdoctoral and faculty appointments in the Institute for Environmental Studies at Wisconsin, he joined

the Chemical Industry Institute of Toxicology (CIIT) in 1981 as a senior scientist in the Department of Epidemiology, and from 1987 onward, served as Director of the CIIT Program on Risk Assessment. In 1989, he joined ENVIRON as a Principal in its Health Sciences Division, remaining there until 1998, when he founded TBS Associates. His research and consulting interests have focused on incorporating knowledge of toxic mechanisms into quantitative risk assessments, and improving epidemiologic methods for assessing human health. He has given hundreds of scientific presentations and published more than 100 scientific papers.

Dr. Starr has been appointed to numerous advisory posts, including the *Halogenated Organics Subcommittee* of the U.S. Environmental Protection Agency's Science Advisory Board, the North Carolina Academy of Sciences *Air Toxics Panel*, and the North Carolina Environmental Management Commission's *Ad Hoc Committee for Air Toxics*. Currently, he chairs the *Secretary's Scientific Advisory Board on Toxic Air Pollutants* for the North Carolina Department of Environmental Health and Natural Resources, and is also a member of the Art & Creative Materials Institute *Toxicological Advisory Board*. He has testified before OSHA, EPA, other regulatory agencies, and the US Congress regarding the potential human health risks posed by exposures to various chemicals, including acrylonitrile, 1,3-butadiene, cadmium, dioxin-like compounds, formaldehyde, lead, methanol, methylene chloride, particulate matter, numerous pesticides, and environmental tobacco smoke. He is an active member of the Society of Toxicology (SOT) and the Society for Risk Analysis (SRA). In 1988-89 he served as the first President of SOT's newly formed Risk Assessment Specialty Section (RASS), and in 1989-90 as President of SRA's Research Triangle Chapter.

Kenny Crump, Independent Consultant

Dr. Kenny S. Crump holds a B.S. in Electrical Engineering from Louisiana Tech University, an M.A. in mathematics from the University of Denver, and a Ph. D. in mathematics from Montana State University. Dr. Crump's research involves development and application of methodologies for quantitative assessment of risks from exposures to toxic substances. He has developed statistical models that have been used by regulatory agencies and private groups for assessing such risks. He has experience with risk assessment of many toxic substances including asbestos, benzene, dioxin, diesel exhaust, and formaldehyde. He has served on science advisory boards of the Environmental Protection Agency, the National Center for Toxicological Research, the Mickey Leland National Urban Air Toxics Research Center and the National Institute of Environmental Health Sciences, and on committees of the National Research Council.

Session 2

EPA Co-Chair

Andrew Kraft, U.S. EPA NCEA

Andrew Kraft received a B.S. in Biochemistry from Lehigh University in 2000, and received a Ph.D. in Pharmaceutical Sciences from the University of Wisconsin- Madison in 2006. From 2006-2011, Andrew conducted postdoctoral research at the National Institute of Environmental Health Sciences (NIEHS). Dr. Kraft joined the U.S. EPA National Center for Environmental Assessment (NCEA) in 2011 as a postdoctoral fellow before transitioning to a federal position as a Biologist four months later. His responsibilities at NCEA which are most relevant to this workshop include serving as both the co-chemical manager and the primary author on the neurotoxicity and non-cancer mode-of-action sections of the Integrated Risk Information System (IRIS) Toxicological Review of formaldehyde inhalation.

External Co-Chair:

Lorenz Rhomberg, Gradient Corporation

Dr. Rhomberg is a Principal at Gradient, the Cambridge, Massachusetts based consulting firm that he joined in 1999. He was a risk assessor at the US EPA from 1984-1994 and on the faculty of the Harvard School of Public Health from 1994-1999, where he currently holds a Visiting Scientist appointment. His focus has been on science policy issues in regulatory risk assessment, with special interest in cross-species extrapolation, dose-response modeling, and weight-of-evidence methodology. Dr. Rhomberg has served on seven committees convened by the National Academy of Sciences. He became a Fellow of the Academy of Toxicological Sciences in 2009 and was named the Outstanding Practitioner by the Society for Risk Analysis in the same year. Dr. Rhomberg has served as a Councilor of the Society for Risk Analysis, as President of the SRA New England chapter, and as councilor for the Risk Assessment Specialty Section and the Regulatory Safety Evaluation Specialty Section of the Society of Toxicology.

Speakers:

Richard Albertini, University of Vermont

I am currently a Research Professor of Pathology at the University of Vermont, after retiring from the Department of Medicine at that University in 2000 and becoming an Emeritus Professor of Medicine. My research focus for more than 40 years has been in the area of mutagenesis, specifically in the development and exploitation of assay systems to detect, quantify and characterize somatic mutations in humans and experimental animals. My fundamental research has been and remains in the area of mutagenesis and the relationship of somatic mutations to cancer. I developed the *HPRT* system for

measuring mutations arising *in vivo* in humans and am currently adapting and validating the *PIGA* system for the same purpose. I have also become involved in the analysis of mutagenicity data for human cancer risk assessment. In recent years, I have broadened my research to include large-scale molecular epidemiological studies, and have conducted large population studies in Europe. I am the author or co-author of approximately 200 papers in the scientific literature, and have served on review and expert committees for academia, government and industry. Since retirement from the University of Vermont, I have been active in consulting on issues of Genetic Toxicology through a limited liability corporation; GENETIC TOXICOLOGY CONSULTANTS, LCC. My clients have usually been chemical corporations, often represented by the American Chemistry Council. In that capacity, I have been involved in reviewing the literature on the genetic toxicology of formaldehyde and am the author or co-author of reviews and opinion letters on this subject. I am currently vice-president for research of BioMosaics, Inc., a small, local biotech start-up company. In addition to my research, I have been clinically active in the areas of oncology, hematology and AIDS for many years and served as Director of the Vermont Cancer Center from 1993 to 1995

David Eastmond, University of California at Riverside

Dr. David A. Eastmond is a professor and chair of the Department of Cell Biology & Neuroscience at the University of California, Riverside. He is actively involved in research and teaching in the areas of toxicology and risk assessment.

The research in Dr. Eastmond's laboratory focuses on the mechanisms involved in the toxicity and carcinogenesis of environmental chemicals. Of particular relevance to this workshop, Dr. Eastmond has had a long standing interest in chemically induced leukemias, and has studied the metabolism and chromosome-damaging effects of various leukemia-inducing agents including benzene, a widely used industrial chemical and ubiquitous pollutant, and bimolane, a pharmaceutical used in China.

Dr. Eastmond has served as the president of the Environmental Mutagen Society and as a Jefferson Science Fellow in the US State Department. He has also participated on numerous review or advisory panels related to chemical mutagenesis, carcinogenesis and risk assessment including panels for the US Environmental Protection Agency, the California Environmental Protection Agency, the US Food and Drug Administration, the National Toxicology Program, the International Programme for Chemical Safety, the International Agency for Research on Cancer, the Organisation for Economic Cooperation and Development, Health Canada, and the International Working Group for Genotoxicity Testing.

Bernard D. Goldstein, University of Pittsburgh

Dr. Goldstein is emeritus professor of environmental and occupational health and former dean of the University of Pittsburgh Graduate School of Public Health. He is a physician, board certified in Internal Medicine, Hematology and in Toxicology. Dr Goldstein is author of over 150 publications in the peer-reviewed literature, as well as numerous reviews related to environmental health. He is an elected member of the National Academies of Science Institute of Medicine (IOM) and of the American Society for Clinical Investigation. His experience includes service as Assistant Administrator for Research and Development of the U.S. Environmental Protection Agency, 1983-1985. In 2001 he came to the University of Pittsburgh from New Jersey where he had been the founding director of the Environmental

and Occupational Health Sciences Institute, a joint program of Rutgers University and Robert Wood Johnson Medical School. He has chaired more than a dozen National Research Council and IOM committees primarily related to environmental health issues. He has been president of the Society for Risk Analysis; and has chaired the NIH Toxicology Study Section, EPA's Clean Air Scientific Advisory Committee, the National Board of Public Health Examiners, and the Research Committee of the Health Effects Institute. He has also served as a member or chairperson of numerous national and international scientific advisory committees for government, industry and environmental groups. Currently he is heavily involved in activities related to the Gulf Oil spill and to shale gas development.

Discussants:

Luoping Zhang, University of California at Berkeley

I am a research professor in toxicology. For the past two decades, my research has focused on understanding the molecular mechanisms of bone marrow toxicity caused by benzene, butadiene, tricholoroethylene, and, more recently, formaldehyde (FA). My investigations have mainly involved the detection of biomarkers associated with these chemical exposures in molecular epidemiological studies conducted with national and international collaborators. I have been the central coordinator among UC Berkeley, US National Cancer Institute and Guangdong Poison Control Center, China, in a biomarker study of Chinese workers occupationally exposed to FA since 2006. My group has investigated specific chromosomal aneuploidies and rearrangements in these studies of benzene and FA exposure, as well as in mature and stem/progenitor human cells *in vitro,* by a molecular cytogenetic method called FISH (fluorescence *in situ* hybridization). More recently, we have developed and applied the innovative OctoChrome FISH method, which simultaneously detects specific rearrangements of all 24 human chromosomes including common genetic changes associated with leukemia and/or lymphoma. In order to identify additional biomarkers and hematopoietic disease-related mechanisms associated with these chemical exposures, we have developed and continue to employ many high-throughput technologies, such as single-cell genetic analysis (SCGA) and array-based toxicogenomic (genomics, transcriptomics, proteomics, and metabolomics) tools. Through extensive collaboration, I have published 14 papers (see below) from FA studies during the last five years, including those on hematotoxicity and stem cell toxicity in FA-exposed workers, meta-analysis of FA and leukemia risk, and potential mechanisms of FA-induced leukemia. I am a co-principal investigator of the project investigating susceptibility to FA and benzene toxicity using the functional genomics approach in the Superfund Basic Research Program (SBRP), and a member of *Carcinogen Identification Committee* appointed by California Governor Brown.

Martha Sandy, California EPA

Dr. Sandy is Chief of the Reproductive and Cancer Hazard Assessment Branch in the California Environmental Protection Agency's (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA). Dr. Sandy's Branch conducts scientific evaluations of the risks of cancer and reproductive hazards from exposure to chemicals present in environmental media, food, fuels and consumer

products, and works collaboratively with California's Department of Public Health and Department of Toxic Substances Control to implement California's biomonitoring program.

Dr. Sandy's current research interests include children's environmental health, and in particular, cancer risk associated with early life exposure to carcinogens; mechanisms of carcinogenesis; and gene-environment interactions. Prior to joining OEHHA, she conducted research investigating biochemical and genetic susceptibility factors in Parkinson's disease, and biochemical and molecular mechanisms of toxicity and carcinogenicity. She has served on several scientific committees for the U.S. Environmental Protection Agency, the National Toxicology Program, and the National Academy of Sciences. Dr. Sandy has a Ph.D. and an M.P.H. in Environmental Health Sciences, with an emphasis in Toxicology, from the University of California, Berkeley's School of Public Health.

Robert Snyder, Rutgers University (retired)

Robert Snyder, Ph. D., A.T.S., is currently professor emeritus of Pharmacology and Toxicology at the Ernest Mario School of Pharmacy of Rutgers, the State University of New Jersey. He earned a B.S. in chemistry at Queens College, Flushing, NY (1957) a Ph.D. in biochemistry at the State University of New York, Upstate Medical Center, Syracuse, NY (1961) and was a postdoctoral fellow at the University of Illinois College of Medicine, Chicago, IL (1961-1963). From 1963 to 1981 he was a professor in the department of Pharmacology of the Thomas Jefferson University, Philadelphia, PA. In 1981 he came to Rutgers to initiate the Joint Graduate Program in Toxicology and was named Chairman of the Department of Pharmacology and Toxicology. He was a founding member of the Environmental and Occupational Health Sciences Institute and served as Director of the Toxicology Division, Associate Director of EOHSI (1985-2000), and Acting Director of EOHSI (2000-2003). He also served as Associate Dean for Research of the Ernest Mario School of Pharmacy (2003-2011). In addition he has held Visiting and/or Adjunct Professorships at the Department of Pharmacology, Jefferson Medical College (1981-2011), Department of Environmental Medicine, Robert Wood Johnson Medical School (1982-2011), the Institute of Toxicology, University of Tübingen, Tübingen, Germany, (1971-1972), and the Institute of Toxicology, Technical University of Munich, Munich, Germany (1990- 2010). Dr. Snyder is a former President of the American College of Toxicology and of the Academy of Toxicological Sciences. He has served as the President of the Middle Atlantic Chapter of SOT, President of the Mechanisms Specialty Section of SOT, and Chairman of the Toxicology Study Section (NIH). He has served on several committees of the National Research Council, including the Committee on Toxicology, the AEGL Committee, the Committee on Non-Stockpile Chemical Warfare Weapons, the Committee on Tetrachloroethylene, etc. He served on the SMACs Committee of NASA. His research interests are in solvent toxicology, chemically-induced bone marrow depression, liver toxicity, leukemogenesis, chemical carcinogenesis, and drug metabolism. He has done extensive work on the mechanisms of benzene induced bone marrow damage. He has been a principal organizer of The International Symposia on Biological Reactive Intermediates (1975-2010) and a series of international symposia on the mechanism of benzene-induced bone marrow toxicity (1989-2009).

Session 3

EPA Co-Chair

Barbara Glenn, U.S. EPA NCEA

Barbara S. Glenn is an environmental epidemiologist with the National Center for Environmental Assessment in the Office of Research and Development at the U.S. Environmental Protection Agency where she is a chemical manager and primary author, along with Andrew Kraft, of the IRIS Toxicological Review for Formaldehyde. At NCEA, her research interests include the use of epidemiological data in risk assessment, especially for cardiovascular and respiratory health outcomes. Dr. Glenn received her Ph.D. in environmental and occupational epidemiology from Johns Hopkins Bloomberg School of Public Health in 1999 and her M.P.H. in Environmental Health Policy Analysis from The University of Michigan School of Public Health in 1984. Prior to joining the EPA in 2002, she was a postdoctoral fellow with the Kennedy Krieger Institute in Baltimore.

External Co-Chair:

Jim Collins, Dow Chemical Company

Dr. James Collins received his PhD in 1981 from the University of Illinois at Urbana-Champaign and is a Fellow in the American College of Epidemiology. He is currently the Director of Epidemiology at the Dow Chemical Company in Midland, Michigan. He is also an Adjunct Research Professor at the University of Pittsburgh, School of Public Health and at Saginaw Valley State University. His major research interest is the impact of occupational and environmental exposures on health including exposures from dioxins, benzene, acrylonitrile, acrylamide, formaldehyde, styrene, and glutaraldehyde.

Speakers:

Patricia Stewart, Independent consultant

Dr. Stewart received her PhD in industrial hygiene from Johns Hopkins University. She worked at OSHA for 6 years and then moved to the National Cancer Institute (NCI) until she retired in 2006. Currently, she is a contractor to the NCI and the National Institute for Environmental Health Sciences. For the NIEHS she is leading the exposure assessment team for a study of the potential health effects of the workers involved in the cleanup of the Gulf of Mexico oil spill in 2010. She has supported occupational epidemiology studies by assessing past exposures for chemical agents. Her research included developing methods to improve exposure assessment methods in epidemiologic studies. She has served as a member of the ACGIH Board of Directors, the organizing committees of several exposure assessment conferences and on governmental and international committees including the International

Agency for Research on Cancer. She has over 160 publications and has mentored 14 Ph.D. students and postdoctoral fellows. In 2010, she received the ACGIH Meritorious Award.

Anneclaire De Roos, Drexel University

Anneclaire J. De Roos is Associate Professor of Environmental and Occupational Health in the Drexel University School of Public Health in Philadelphia, Pennsylvania. She earned a bachelor of arts degree (geography/ecosystems) from the University of California at Los Angeles, a master of public health (MPH) degree (epidemiology/biostatistics) from the University of California at Berkeley, and a PhD (epidemiology) in the year 2000 from the University of North Carolina at Chapel Hill. Her research interests and experience are primarily in the study of occupational and environmental exposures to chemicals and radiation as risk factors for cancer, other chronic diseases, and intermediate biologic effects. Dr. De Roos' dissertation research focused on parental occupational exposures as risk factors for childhood cancer in their offspring. From 2000-2002, Dr. De Roos trained as a postdoctoral fellow in the Division of Cancer Epidemiology and Genetics of the National Cancer Institute, where she gained experience in studies of genetic determinants of disease and intermediate biologic effects (such as immune function) of environmental exposures. She was a member of the faculty at the University of Washington and Fred Hutchinson Cancer Research Center in Seattle, WA from 2003-2012, where her research focused on environmental risk factors for non-Hodgkin lymphoma, leukemias and other cancers, including workplace exposures (pesticides, solvents), persistent organic pollutants (PCBs, dioxins), and point sources of pollution (industrial facilities, traffic). Dr. De Roos has been a member of the International Lymphoma Epidemiology (InterLymph) Consortium since 2005, and is currently funded by the National Institute of Environmental Health Sciences (NIEHS) to conduct a consortium-based evaluation of occupational solvent exposure as a potential cause of multiple myeloma. In her role as an educator, Dr. De Roos has taught epidemiologic methods, cancer epidemiology, and risk assessment. She has served on several expert committees in recent years, including those reviewing the epidemiology of formaldehyde for NIEHS's Report on Carcinogens and EPA's draft health risk assessment of trichloroethylene.

Harvey Checkoway, University of California at San Diego

Throughout my career, I have devoted the majority of research efforts to epidemiologic investigations of occupational and environmental risk factors for chronic diseases, especially cancers, neurological disorders, and respiratory diseases. Formaldehyde has been one of the environmental toxicants I have investigated in the context of occupational cohort studies of cancer risks. As first author of a text on occupational epidemiology, *Research Methods in Occupational Epidemiology*, Oxford University Press, 1st ed 1989, 2nd ed 2004, I have contributed substantially to study design and data interpretation methodology. I believe that these accomplishments qualify me to serve as a Formaldehyde Workshop expert speaker.

Thomas Bateson, U.S. EPA NCEA

Discussants:

Laura Beane-Freeman, National Cancer Institute

Dr. Beane Freeman is an investigator in the Occupational and Environmental Epidemiology Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute. She has published extensively on occupational risk factors for cancer. She is the Principal Investigator of the NCI Formaldehyde Workers Cohort and authored the most recent updates from this study. She is also a collaborator on an epidemiologic study of workers in the funeral industry as well as a molecular study of hematotoxicity and other intermediate endpoints associated with occupational formaldehyde exposure.

Leslie Stayner, University of Illinois at Chicago

[HYPERLINK "http://www.collegiumramazzini.org/fellows1.asp?id=265"]

Karen Robinson, Johns Hopkins University

Karen A. Robinson, PhD is an associate professor in the Departments of Medicine, Epidemiology, and Health Policy and Management, and Director of the Evidence-based Practice Center of Johns Hopkins University. Her work has focused on the identification, synthesis and presentation of evidence for informing healthcare decisions and research. Dr. Robinson has conducted over 50 systematic reviews, including on topics such as the effects of arsenic in drinking water, and PFOA. She also served on the IOM panel for the report Gulf War and Health: Treatment for Chronic Multisymptom illness. Dr. Robinson has been active in the Cochrane Collaboration for almost 20 years and conducts research on the methodology for conducting systematic reviews, evidence-based healthcare and evidence-based research.